US009123478B2

(12) **United States Patent**
Esenwein et al.

(10) **Patent No.: US 9,123,478 B2**
(45) **Date of Patent: Sep. 1, 2015**

(54) **POWER TOOL SWITCHING DEVICE**

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(73) Assignee: **Robert Bosch GmbH**, Stuttgart (DE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 187 days.

(21) Appl. No.: **13/691,248**

(22) Filed: **Nov. 30, 2012**

(65) **Prior Publication Data**

US 2013/0161166 A1 Jun. 27, 2013

(30) **Foreign Application Priority Data**

Dec. 23, 2011 (DE) 10 2011 089 717

(51) **Int. Cl.**

H01H 9/00	(2006.01)
H01H 3/20	(2006.01)
B25F 5/00	(2006.01)
B24B 23/02	(2006.01)
H01H 9/06	(2006.01)

(52) **U.S. Cl.**

CPC ***H01H 9/00*** (2013.01); ***B24B 23/028*** (2013.01); ***B25F 5/00*** (2013.01); *H01H 3/20* (2013.01); *H01H 9/06* (2013.01)

(58) **Field of Classification Search**

CPC H01H 3/20; H01H 9/06

See application file for complete search history.

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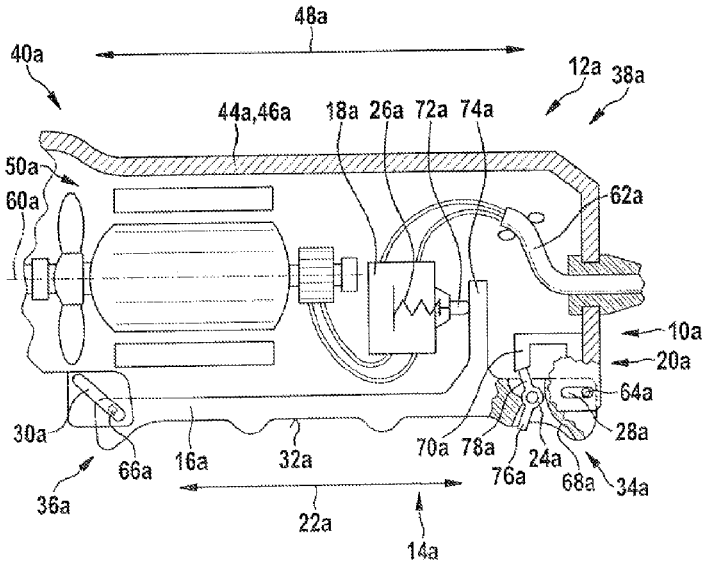
(57) **ABSTRACT**

A power tool switching device, in particular for portable power tools, includes at least one switching unit having at least one movably mounted control element configured to actuate a mechanical, electrical and/or electronic switching element. The power tool switching device further includes at least one guide unit, which, upon an actuation of the control element along a direction of main extent of the control element, is configured to convert a movement of the control element along the direction of main extent at least into a movement of the control element running transversely in relation to the direction of main extent.

10 Claims, 7 Drawing Sheets



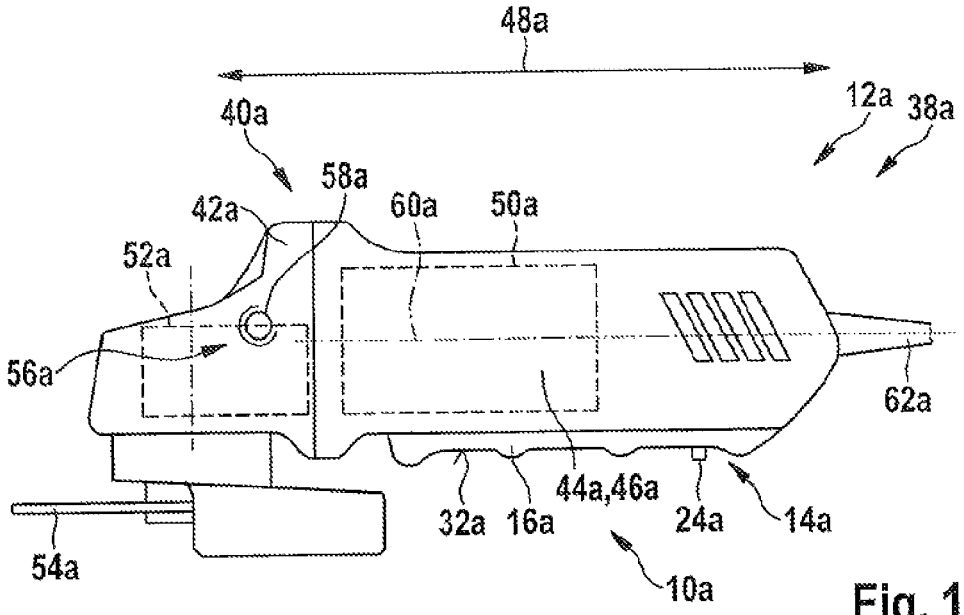

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Fig. 1

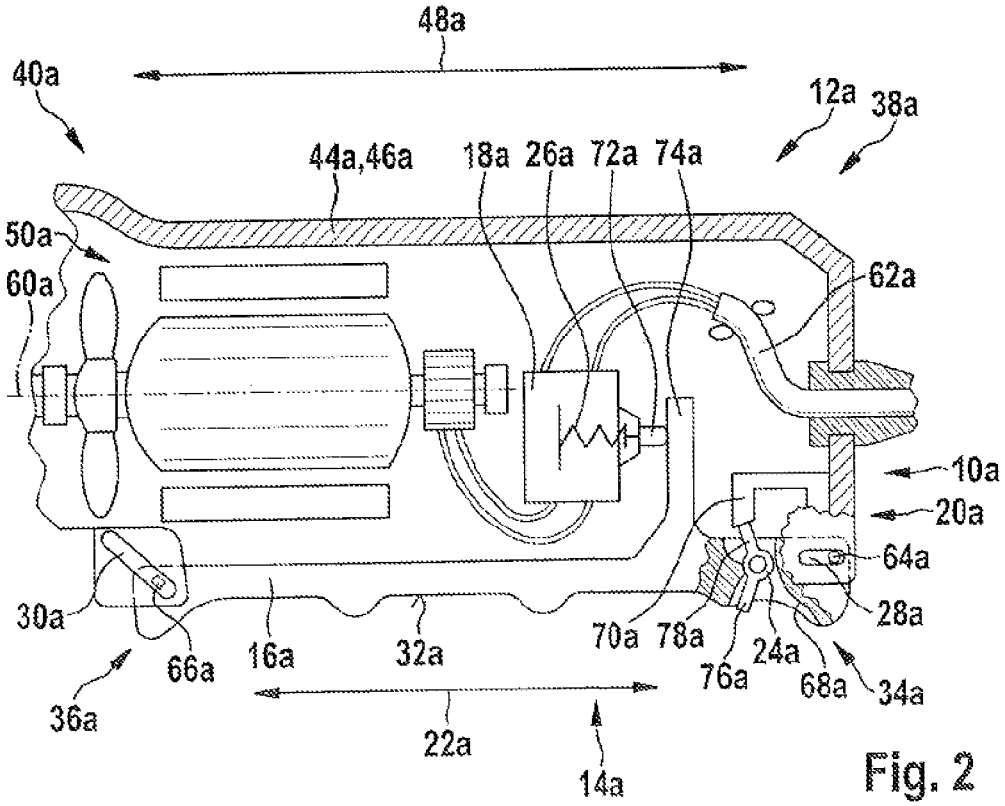
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Fig. 2

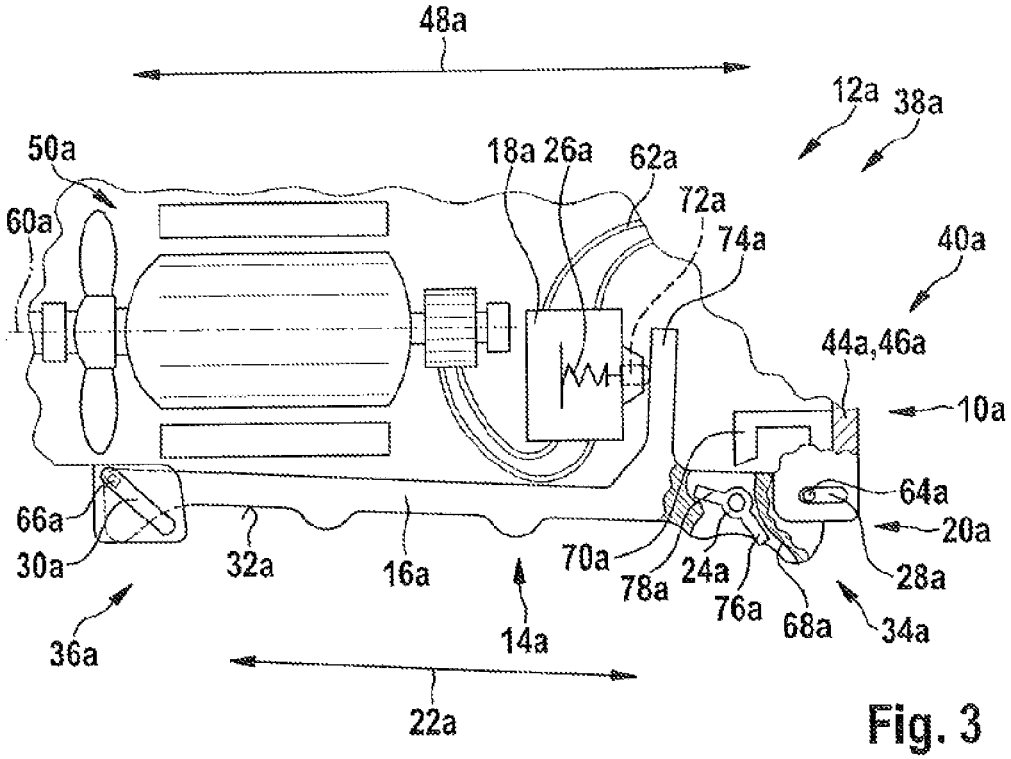
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Fig. 3

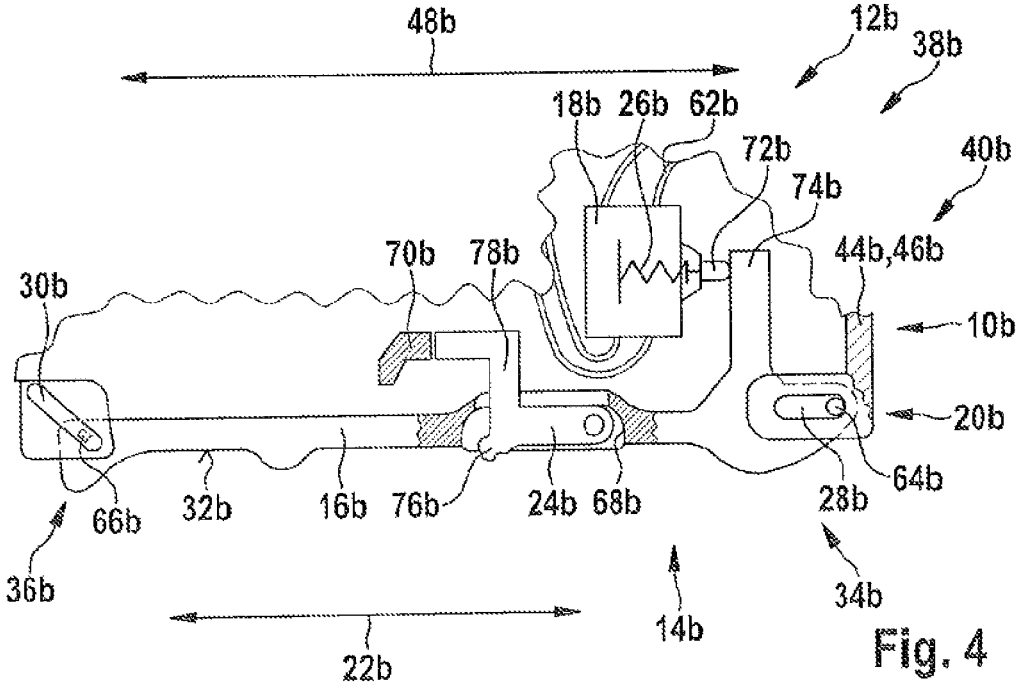
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Fig. 4

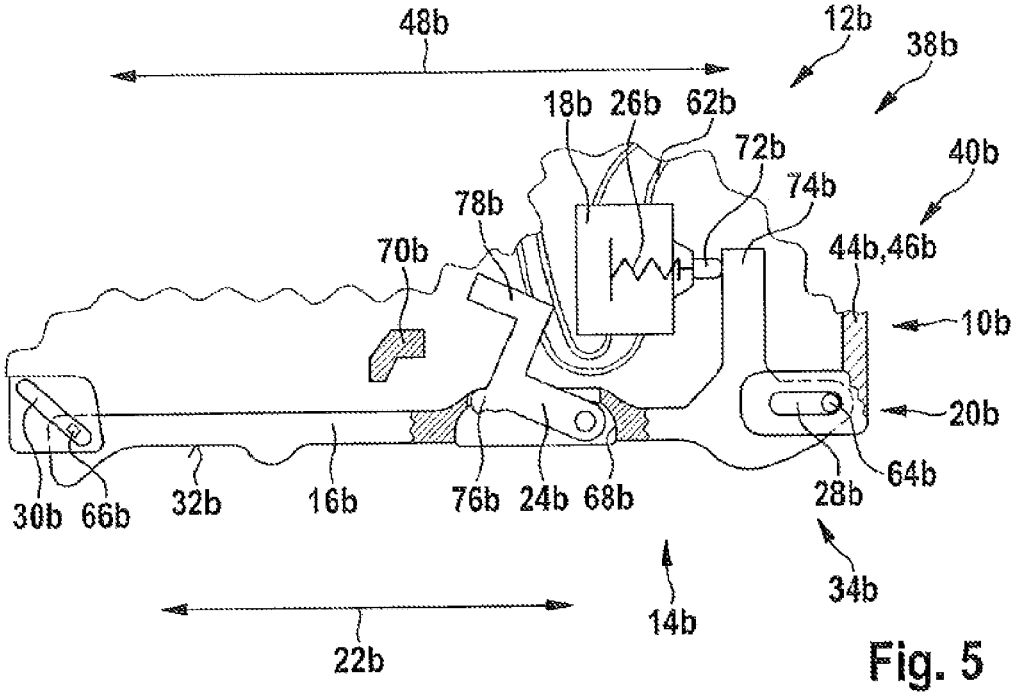
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Fig. 5

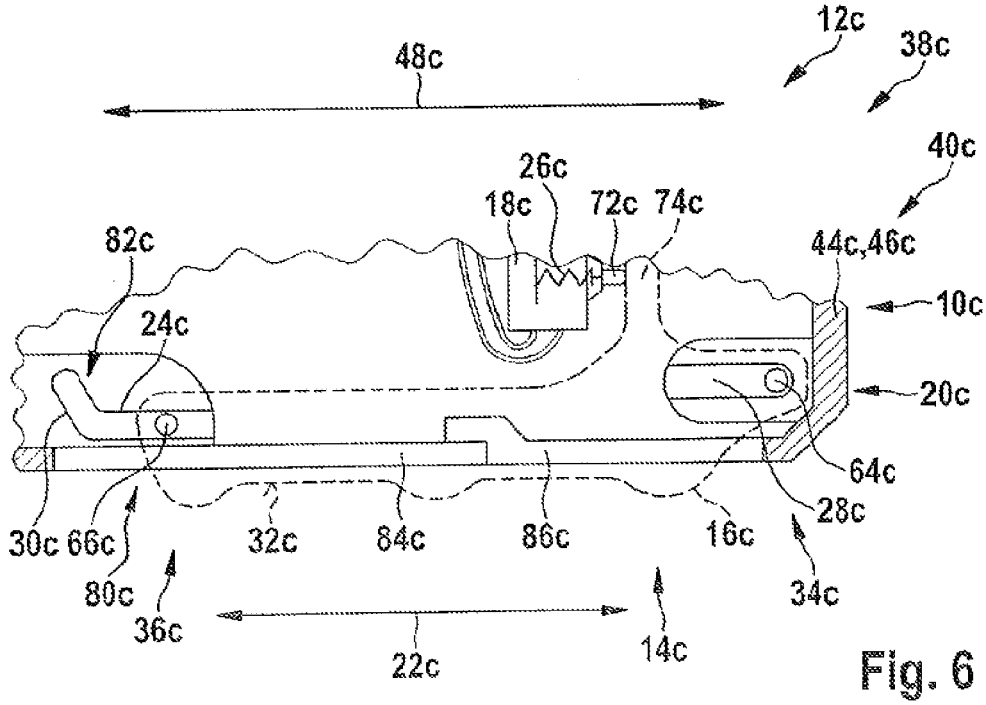
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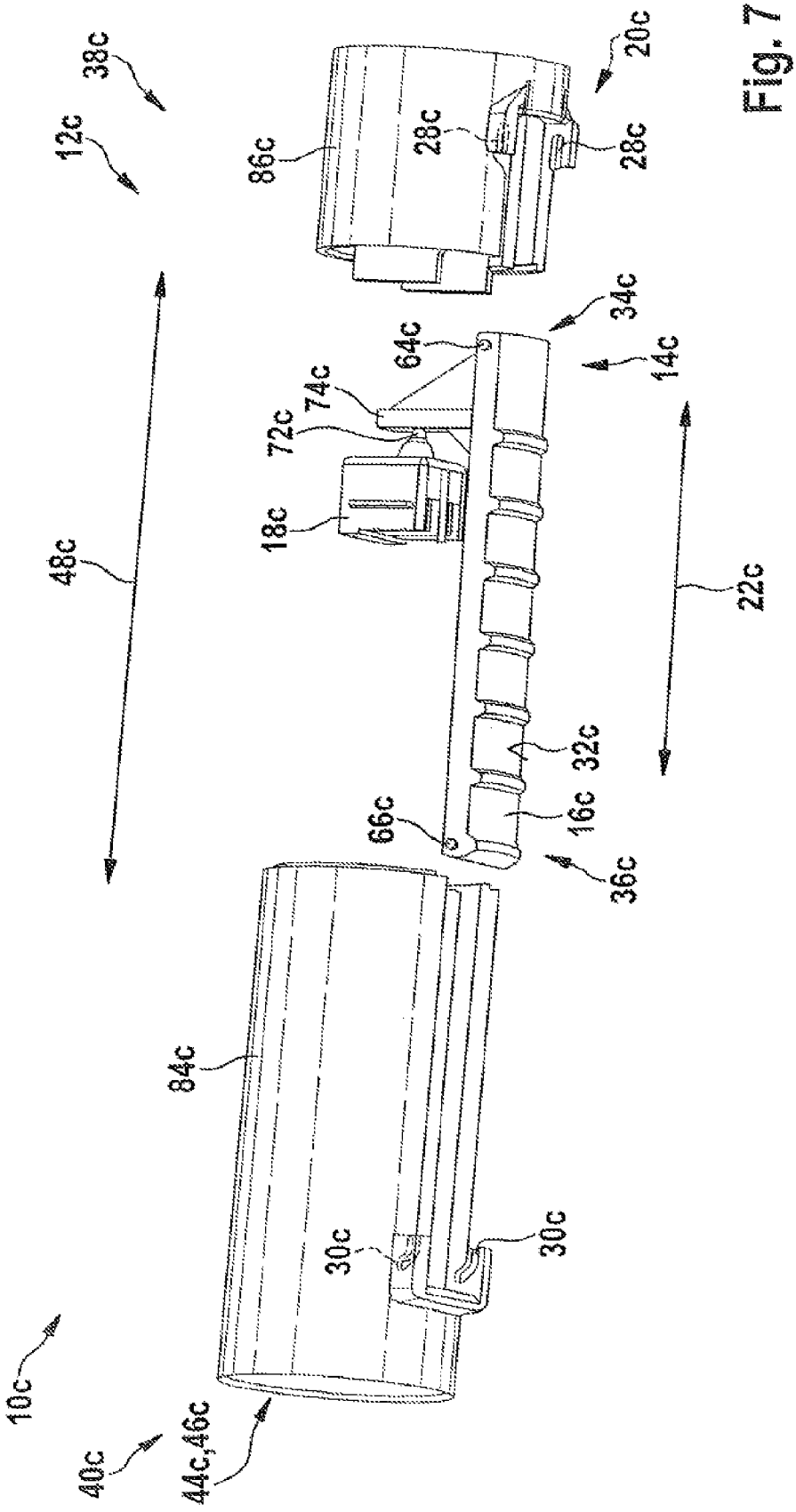
Fig. 6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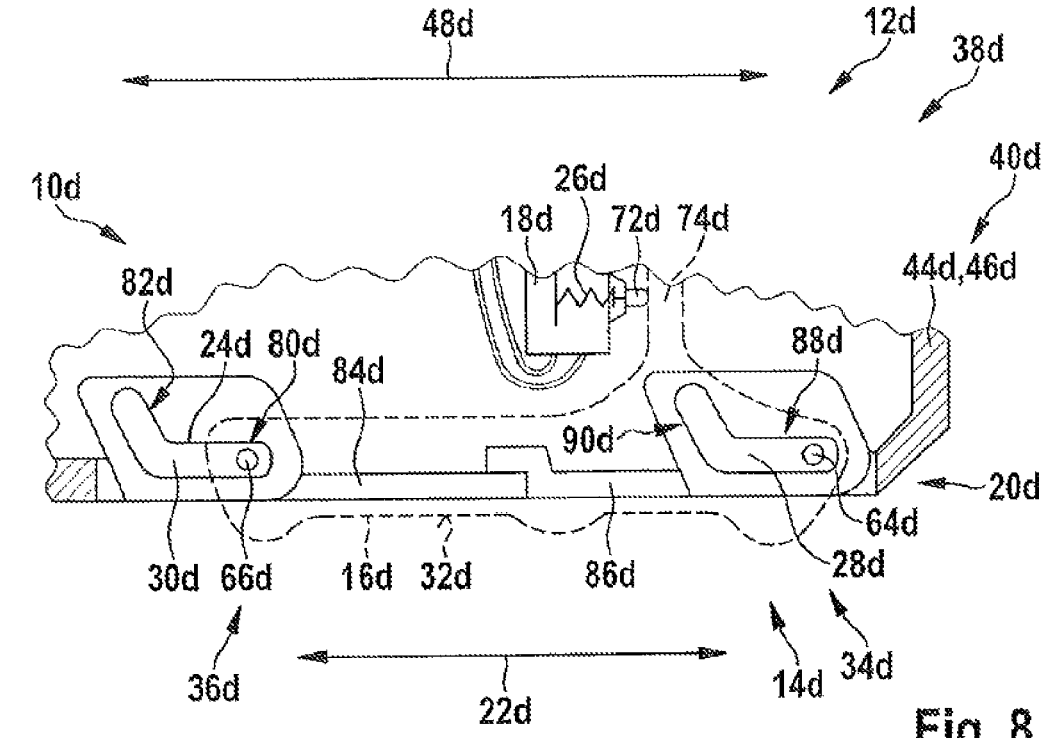
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Fig. 8

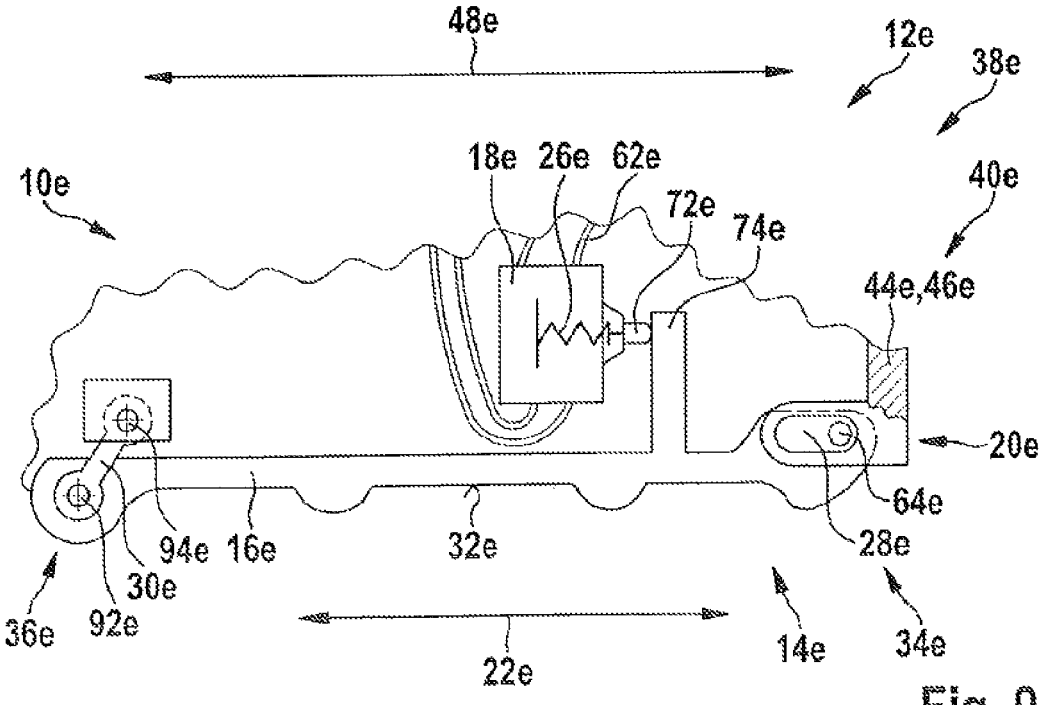
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Fig. 9

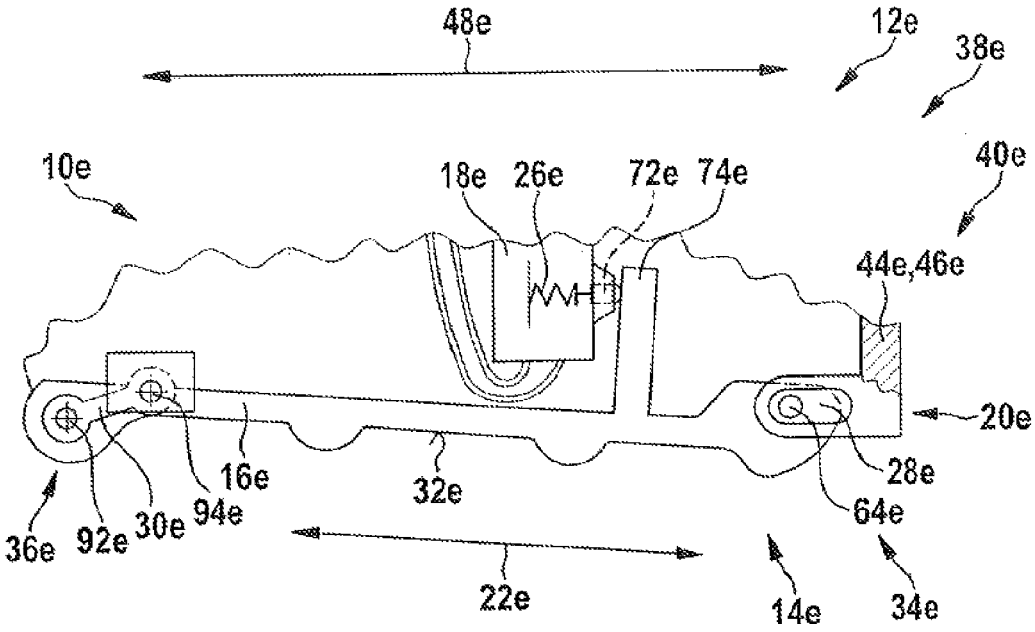
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Fig. 10

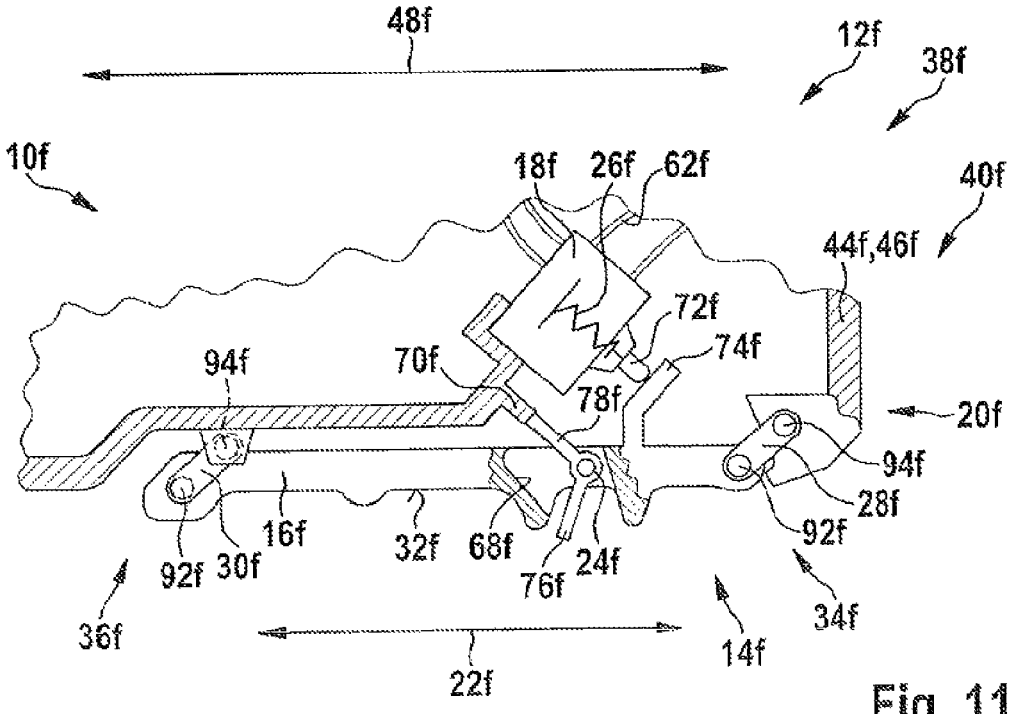
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Fig. 11

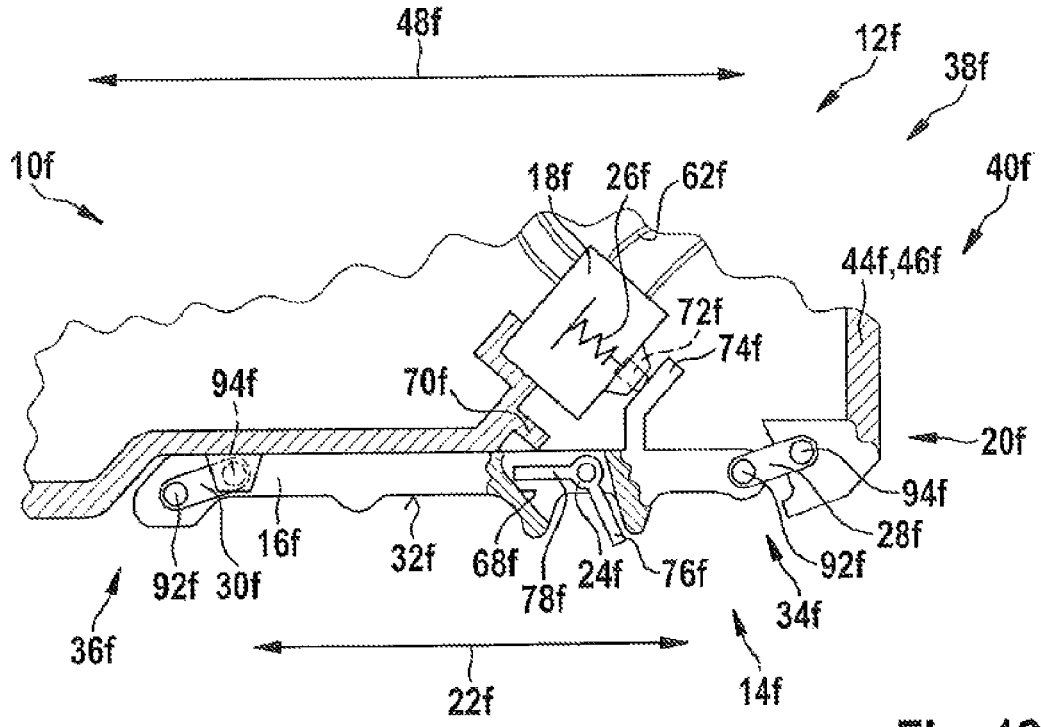
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Fig. 12

POWER TOOL SWITCHING DEVICE

This application claims priority under 35 U.S.C. §119 to patent application no. DE 10 2011 089 717.8, filed on Dec. 23, 2011 in Germany, the disclosure of which is incorporated herein by reference in its entirety.

BACKGROUND

There are already known power tool switching devices, in particular for portable power tools, that comprise a switching unit having a movably mounted control element for actuating a mechanical, electrical and/or electronic switching element.

SUMMARY

The disclosure is based on a power tool switching device, in particular for portable power tools, comprising at least one switching unit having at least one movably mounted control element for actuating a mechanical, electrical and/or electronic switching element.

It is proposed that the power tool switching device comprises at least one guide unit, which is provided, upon an actuation of the control element along a direction of main extent of the control element, to convert a movement of the control element along the direction of main extent at least into a movement of the control element running transversely in relation to the direction of main extent. The complete control element in this case can execute a movement along the direction of main extent and, consecutive thereto, a movement in a direction running transversely in relation to the direction of main extent, or the control element can execute a movement along the direction of main extent and, consecutively thereto, the control element can partially execute a movement in a direction running transversely in relation to the direction of main extent, such as, for example, a swivel movement about a swivel axis, in particular about a swivel axis running through the control element. The term "switching unit" is intended here to define, in particular, a unit provided to alter a state of a unit of higher order than the switching unit as a result of an actuation of at least the control element. Particularly preferably, the switching unit is provided to enable and/or interrupt an electrical power supply to a drive unit as a result of an actuation of the control element that acts upon the switching element of the switching unit, which switching element is realized as a mechanical, electrical and/or electronic switch and/or pushbutton. Preferably, the switching element realized as a mechanical, electrical and/or electronic switch and/or pushbutton is arranged in an electric circuit between an electrical power supply line such as, for example, a cable, on which there is a plug connector for connecting to a socket outlet, and a load such as, for example, a drive unit, realized as an electric motor, of the portable power tool. The term "provided" in this context is to be defined as specially designed and/or specially equipped. The expression "movably mounted" is intended here to define, in particular, a mounting of an element, the element, in particular decoupled from an elastic deformation of the element, having a capability to move along at least a travel distance greater than 1 mm, preferably greater than 2 mm, and particularly preferably greater than 5 mm, and/or a capability to move about at least one axis, by an angle greater than 2°, preferably greater than 5°, and particularly preferably greater than 10°.

A "guide unit" is to be understood here to be, in particular, a unit provided to guide a component during a movement in a plane along a defined path, by exerting at least one constraining force transversely in relation to a direction of movement.

A "constraining force" is to be understood here to be, in particular, a force provided to prevent a component from moving in at least one direction and/or to keep the component, during a movement, on a path defined through exertion of the force upon the component. Preferably, the control element extends over at least a major part of a total length of a rod-shaped housing region of a power tool housing of the portable power tool, the total length running at least substantially parallel in relation to the direction of main extent, thereby enabling quite particularly secure and comfortable operation to be achieved by simple design means. In particular, the control element extends along 30% of the total length of the rod-shaped housing region, preferably along 50%, and particularly preferably along 75%. The rod-shaped housing region of the power tool housing of the portable power tool preferably constitutes a handle region that is gripped, or grasped, by an operator's hand for the purpose of operation and/or handling during machining of a workpiece by means of the portable power tool.

The expression "direction of main extent" is intended here to define, in particular, a direction along which a component has a maximum extent, the direction being realized, in particular, so as to be other than a diagonal and running at least substantially parallel to at least two edges of the component that delimit side walls of the component that face away from and are spaced apart from each other. Preferably, the direction of main extent of the control element, when mounted in the portable power tool, runs at least substantially parallel to a drive axis of the drive unit of the portable power tool. "Substantially parallel" is to be understood here to mean, in particular, an alignment of a direction relative to a reference direction, in particular in one plane, the direction deviating from the reference direction by, in particular, less than 8°, advantageously less than 5°, and particularly advantageously less than 2°. Preferably, the control element has two degrees of freedom, owing to guidance by means of the guide unit. Upon an actuation of the control element along the direction of main extent, the control element is preferably initially moved translationally along the direction of main extent, owing to the guidance by the guide unit, and then, owing to the guidance by means of the guide unit, swiveled into a direction running transversely in relation to the direction of main extent, and/or the control element executes a translational movement on which a swiveling movement is superimposed. By this means, advantageously, the control element can be made comfortable to operate. In addition, advantageously, it is possible to prevent a portable power tool, having the power tool switching device according to the disclosure, from being inadvertently started up as a result of a region of the portable power tool in which the control element is arranged being grasped by an operator's hand, and therefore to prevent an actuating force, running at least substantially perpendicular to the direction of main extent, from being exerted. Further, by means of a movement capability of the control element that is defined by the guide unit, in particular owing to the swiveling movement of the control element, in the direction of the switching element, that follows an initially translational movement in the case of an actuation of the control element, it is possible, advantageously, through a compressive force already being generated when the handle region is being grasped, for the control element to be comfortably held in a position of the control element that corresponds to the portable power tool being in a switched-on state.

Furthermore, it is proposed that the switching unit has at least one blocking element, which is provided to block a movement of the control element in at least one direction, in at least one operating state. A "blocking element" is to be

understood here to be, in particular, an element provided to prevent, insofar as possible, a movement of a movably mounted component along at least one travel distance and/or about at least one axis by means of a mechanical, electrical and/or electronic blocking means, in at least one operating state. Preferably, the blocking element is provided to prevent, insofar as possible, a movement of the movably mounted control element by means of a mechanical blocking means, in at least one operating state. It is also conceivable, however, for the blocking element to prevent, insofar as possible, a movement of the control element by means of action of an electromagnetic force and/or action of a permanent-magnet force upon the control element such as, for example, by means of displaceable magnets, in at least one operating state. The blocking element is therefore preferably realized as a mechanical blocking element that is provided, as a result of a direct contact, with a stop of the switching unit that is arranged in the power tool housing of the portable power tool, when in a blocking position, to block a movement of the control element. It is also conceivable, however, for the switching unit to comprise a multiplicity of blocking elements, which are provided to block a movement of the control element by means of stops of the switching unit that are arranged in the power tool housing of the portable power tool. A number of stops arranged in the power tool housing preferably corresponds to a number of blocking elements. The blocking elements in this case can be arranged with an even and/or uneven distribution on the control element and/or on the power tool housing. Particularly preferably, the blocking element is movably mounted on the control element. The design according to the disclosure, advantageously, in addition to preventing inadvertent startup of the portable power tool, by means of the movement capability of the control element defined by the guide unit, achieves a high degree of protection against inadvertent startup of the portable power tool. Advantageously, therefore, it is possible to achieve a high degree of protection against injury to an operator resulting from inadvertent startup of the portable power tool.

Advantageously, the switching unit has at least one spring element, which is provided to apply a spring force to the control element in at least one operating position. Particularly preferably, the spring element is provided to apply a spring force to the control element in the direction of an initial position of the control element. Preferably, an electrical power supply to the drive unit is interrupted when the control element is in an initial position, owing to the switching element not being actuated. A "spring element" is to be understood to be, in particular, a macroscopic element having at least one extent that, in a normal operating state, can be varied elastically by at least 10%, in particular by at least 20%, preferably by at least 30%, and particularly advantageously by at least 50% and that, in particular, generates a counterforce, which is dependent on a variation of the extent and preferably proportional to the variation and which counteracts the variation. An "extent" of an element is to be understood to be, in particular, a maximum distance of two points of a perpendicular projection of the element on to a plane. A "macroscopic element" is to be understood to be, in particular, an element having an extent of at least 1 mm, in particular of at least 5 mm, and preferably of at least 10 mm. Advantageously, it is possible to achieve an automatic movement of the control element into an operating position, in particular into an initial position. Particularly advantageously, therefore, a watchdog circuit can be achieved. A "watchdog" circuit is to be understood to be, in particular, a circuit that automatically deactivates the portable power tool in the case of a termination of an intentional activation of the portable power tool, for example in the case of unconsciousness and/or in the case of an intentional interruption of application of an actuating force upon the control element.

Further, it is proposed that the guide unit is realized as a slideway guide unit and/or as a pendulum rod guide unit. A "slideway guide unit" is to be understood here to be, in particular, a guide unit that, as a result of a bolt-shaped element engaging in a slideway realized as a control recess, defines, or controls, a movement capability and/or movement direction of a component. The term "pendulum rod guide unit" is intended here to define, in particular, a guide unit that, as a result of a rigid guide element being movably mounted on two components that are movable relative to each other, defines, or controls, a movement capability and/or movement direction. By simple design means it is possible for a movement of the control element along one direction to be converted into a movement of the control element in a further direction.

Particularly preferably, the guide unit has at least one guide element, which is provided to mount the control element in a swiveling manner. Preferably, a swivel axis runs at least substantially perpendicular to the direction of main extent of the control element. Particularly preferably, the guide element is provided to mount the control element in a swiveling manner when the control element is in an operating state in which a pure translational movement of the control element along the direction of main extent that prevails at the start of an actuation of the control element has been completed and/or in which, in particular, a translational movement and a swiveling movement are superimposed on each other. The design according to the disclosure advantageously enables the control element to be swiveled in, in order that an operator can comfortably hold the control element in an operating position of the control element that corresponds to the portable power tool being in a switched-on state.

In addition, it is proposed that the guide unit has at least one further guide element, realized as a groove, which has a guide track course that is at least partially angled relative to the direction of main extent of the control element, at least when the control element is in an initial position. The guide track course and the direction of main extent in this case preferably enclose an angle other than 90° and 180°. A "guide track course" is to be understood here to be, in particular, a course of a track, in particular of the groove, which defines a movement path of the control element during a movement, the course of the path being constituted by peripheral regions of the track, in particular of the groove, that run at least substantially parallel to each other and delimit the track. The guide element, realized as a groove, is preferably arranged in an inside of the power tool housing of the portable power tool that faces toward the control element. Arranged on the control element in this case, preferably, is at least one bolt-shaped engagement element of the guide unit, which engages in the guide element, realized as a groove, for the purpose of guiding the control element. Preferably, the engagement element is integrally formed on to the control element. It is also conceivable, however, for the engagement element to be realized separately from the control element and to be fixedly connected to the control element by means of a connection type considered appropriate by persons skilled in the art, such as, for example, a positive and/or non-positive connection type. In addition, however, it is also conceivable for the guide element, realized as a groove, to be arranged on the control element, and for the engagement element to be arranged on the inside of the power tool housing. The design according to the disclosure, by simple design means, makes it possible for a translational movement along the direction of main extent to

be converted into a direction running transversely in relation to the direction of main extent.

Furthermore, it is proposed that the guide unit has at least one guide element realized as a pendulum rod. The expression "pendulum rod" is intended here to define, in particular, an element, in particular a rigid element, that is mounted in the manner of a linkage at two ends of the element that face away from each other. Advantageously, a movable mounting of the control element can be achieved at low cost. In addition, advantageously, it can be ensured that the control element can be moved when being used in very dirty environments such as, for example, environments that contain large amounts of dust or material removed from workpieces.

Advantageously, the control element has at least two ends that face away from each other, as viewed along the direction of main extent, at least one guide element of the guide unit being arranged at one end, and at least one further guide element of the guide unit being arranged at a further end that faces away from the end, when the control element is in the mounted state. Preferably, two guide elements of the guide unit are arranged at the end, and two further guide elements of the guide unit are arranged at the further end. The guide elements and the further guide elements are preferably realized as grooves, in which there engage engagement elements of the guide unit that are fixedly connected to the control element, for the purpose of guiding the control element, and/or the guide elements and the further guide elements are realized as pendulum rods, which are movably mounted on the control element. Advantageously, precise guidance of the control element during a movement can be achieved. In addition, in particular if two guide elements are arranged at one end and two further guide elements are arranged at the further end of the control element, it is possible to achieve an advantageously symmetrical arrangement of the guide elements and/or of the further guide elements on and/or in the power tool housing of the portable power tool, to enable the control element to be guided in an advantageously stable manner during a movement.

Further, the disclosure is based on a portable power tool having a power tool switching device according to the disclosure. A "portable power tool" is to be understood here to be, in particular, a power tool for machining of workpieces, that can be transported by an operator without a transport machine. The portable power tool has, in particular, a mass of less than 40 kg, preferably less than 10 kg, and particularly preferably less than 5 kg. Particularly preferably, the portable power tool is realized as an angle grinder. It is also conceivable, however, for the portable power tool to be of a different design, considered appropriate by persons skilled in the art, such as being designed, for example, as a manual planing machine, as a multifunction power tool, as a portable milling machine, as a grinding machine and/or as an electrically operated garden appliance. Advantageously, a high degree of operating comfort can be achieved for an operator of the portable power tool.

The power tool switching device according to the disclosure and/or the power tool according to the disclosure in this case is/are not intended to be limited to the application and embodiment described above. In particular, for the purpose of fulfilling a mode of operation described herein, the power tool switching device according to the disclosure and/or the power tool according to the disclosure can have a number of individual elements, components and units that differs from a number stated herein.

BRIEF DESCRIPTION OF THE DRAWINGS

Further advantages are given by the following description of the drawings. The drawings show exemplary embodiments of the disclosure. The drawings, the description, and the claims contain numerous features in combination. Persons skilled in the art will also expediently consider the features individually and combine them to create appropriate further combinations.

In the drawings:

FIG. **1** shows, in a schematic representation, a portable power tool according to the disclosure comprising a power tool switching device according to the disclosure,

FIG. **2** shows, in a schematic representation, a detail view of the power tool switching device according to the disclosure, when a control element of a switching unit of the power tool switching device according to the disclosure is in an initial position,

FIG. **3** shows, in a schematic representation, a detail view of the power tool switching device according to the disclosure, when the control element is in a switch-on position,

FIG. **4** shows, in a schematic representation, a detail view of an alternative power tool switching device according to the disclosure, when a control element of a switching unit of the alternative power tool switching device according to the disclosure is in an initial position,

FIG. **5** shows, in a schematic representation, a detail view of the alternative power tool switching device according to the disclosure from FIG. **4**, when the control element is in the initial position, with a blocking element of the switching unit in a release position,

FIG. **6** shows, in a schematic representation, a detail view of a further alternative power tool switching device according to the disclosure, when a control element of a switching unit of the alternative power tool switching device according to the disclosure is in an initial position,

FIG. **7** shows, in a schematic representation, an exploded view of the further alternative power tool switching device according to the disclosure from FIG. **6**, when the control element is in a switch-on position,

FIG. **8** shows, in a schematic representation, a detail view of a further alternative power tool switching device according to the disclosure, when a control element of a switching unit of the alternative power tool switching device according to the disclosure is in an initial position,

FIG. **9** shows, in a schematic representation, a detail view of a further alternative power tool switching device according to the disclosure, when a control element of a switching unit of the alternative power tool switching device according to the disclosure is in an initial position,

FIG. **10** shows, in a schematic representation, a detail view of the further alternative power tool switching device according to the disclosure from FIG. **9**, when the control element is in a switch-on position,

FIG. **11** shows, in a schematic representation, a detail view of a further alternative power tool switching device according to the disclosure, when a control element of a switching unit of the alternative power tool switching device according to the disclosure is in an initial position, and

FIG. **12** shows, in a schematic representation, a detail view of the further alternative power tool switching device according to the disclosure from FIG. **11**, when the control element is in a switch-on position.

DETAILED DESCRIPTION

FIG. **1** shows a portable power tool **12***a*, realized as an angle grinder **38***a*, comprising a power tool switching device **10***a*. The angle grinder **38***a* has a power tool housing **40***a*, which comprises a transmission housing **42***a* and a motor housing **44***a*. The power tool housing **40***a* is of a pot-type

design. It is also conceivable, however, for the power tool housing **40***a* to be of a shell-type design, or a combination of a pot-type and shell-type design. Further, the angle grinder **38***a* has a main handle **46***a*, which is constituted by the motor housing **44***a*. The main handle **46***a*, starting from the transmission housing **42***a*, extends in a direction that faces away from the transmission housing **42***a* and that runs at least substantially parallel to a direction of main extent **48***a* of the angle grinder **38***a*. The main handle **46***a* in this case has an at least substantially cylindrical shape. It is also conceivable, however, for the main handle **46***a* to have a different shape, considered appropriate, in particular ergonomically appropriate, by persons skilled in the art.

The motor housing **44***a* is provided to receive a drive unit **50***a* of the angle grinder **38***a*. The transmission housing **42***a* is provided to receive an output unit **52***a* of the angle grinder **38***a*, which output unit comprises a drive spindle (not represented in greater detail here) for driving a machining tool **54***a* in rotation. An auxiliary-handle fastening device **56***a* is arranged on the transmission housing **42***a*. The auxiliary-handle fastening device **56***a* has a multiplicity of auxiliary-handle receiving elements **58***a* (only one auxiliary-handle receiving element **58***a* can be seen in FIG. **1**), which are arranged in an evenly distributed manner along a circumferential direction on the transmission housing **42***a*. The auxiliary-handle receiving elements **58***a* are provided to receive a fastening region of a removable auxiliary handle (not represented in greater detail here). The fastening region of the auxiliary handle can be screwed into the auxiliary-handle receiving elements **58***a*, for example by means of a screwed connection, for the purpose of fixing the auxiliary handle to the transmission housing **42***a*. When the fastening region of the auxiliary handle is in a mounted state in an auxiliary-handle receiving element **58***a*, the auxiliary handle extends transversely in relation to the direction of main extent **48***a* of the angle grinder **38***a*.

FIG. **2** shows a detail view of the power tool switching device **10***a* when a control element **16***a* of a switching unit **14***a* of the power tool switching device **10***a* is in an initial position. The power tool switching device **10***a* thus comprises at least the switching unit **14***a*, which comprises at least the movably mounted control element **16***a* for actuating a mechanical, electrical and/or electronic switching element **18***a* of the switching unit **14***a*. The switching unit **18***a* is electrically connected to a power supply cable **62***a* and to the drive unit **50***a*, in a manner already known to persons skilled in the art. The switching element **18***a* is thus provided, when in a non-actuated state, to break an electric circuit for supplying electrical power to the drive unit **50***a* and, when in an actuated state, to close the electric circuit for supplying electrical power to the drive unit **50***a*. When the control element **16***a* is in the initial position, the switching element **18***a* is not being actuated by the control element **16***a*. In this case, an electrical power supply to the drive unit **50***a* is interrupted when the control element **16***a* is in the initial position. Thus, when the control element **16***a* is in the initial position, no electric current is supplied to the drive unit **50***a*.

The control element **16***a* is arranged on the main handle **46***a*, on a side of the main handle **46***a* that faces toward the drive spindle. Alternatively, the control element **16***a* could also be arranged on a side of the main handle **46***a* that faces away from the drive spindle, or on another side considered appropriate by persons skilled in the art. In particular, the main handle **46***a* could be mounted so as to be rotatable relative to the transmission housing **42***a*. The control element **16***a* extends along the direction of main extent **22***a* of the control element **16***a* on the main handle **46***a*, or on the motor housing **44***a*. A total extent of the control element **16***a* along the direction of main extent **22***a* corresponds in this case to approximately 80% of a total extent of the main handle **46***a* along the direction of main extent **48***a* of the angle grinder **38***a*. The control element **16***a* has a control surface **32***a* having an at least substantially rectangular projection surface. The switching element **18***a* is arranged in the interior space enclosed by the main handle **46***a*, or by the motor housing **44***a*. The switching element **18***a* in this case is arranged in a region of the interior space that is arranged on a side of the main handle **46***a*, or of the motor housing **44***a*, that faces away from the transmission housing **42***a*. It is also conceivable, however, for the switching element **18***a* to be arranged at a different position, considered appropriate by persons skilled in the art, in and/or on the main handle **46***a*, or on the motor housing **44***a*.

For the purpose of movable mounting and guidance during a movement of the control element **16***a*, the power tool switching device **10***a* has at least one guide unit **20***a*. The guide unit **20***a* is provided, upon an actuation of the control element **16***a* along a direction of main extent **22***a* of the control element **16***a*, to convert a movement of the control element **16***a* along the direction of main extent **22***a* at least into a movement of the control element **16***a* running transversely in relation to the direction of main extent **22***a*. The direction of main extent **22***a* of the control element **16***a* in this case, when the control element **16***a* is in the initial position, runs at least substantially parallel to the direction of main extent **48***a* of the angle grinder **38***a*. In addition, the direction of main extent **22***a* of the control element **16***a*, when the control element **16***a* is in the initial position, runs at least substantially parallel to a drive axis **60***a* of the drive unit **50***a*. The control element **16***a* has at least two ends **34***a*, **36***a* that face away from each other, as viewed along the direction of main extent **22***a*, at least one guide element **28***a* of the guide unit **20***a* being arranged at an end **34***a* of the control element **16***a* that faces away from the transmission housing **42***a*, and at least one further guide element **30***a* of the guide unit **20***a* being arranged at a further end **36***a* of the control element **16***a* that faces away from the end **34***a* and toward the transmission housing **42***a*, when the control element **16***a* is in a mounted state.

The guide unit **20***a* has a total of two guide elements **28***a*, which are arranged at the end **34***a* of the control element **16***a* that faces away from the transmission housing **42***a*, and two further guide elements **30***a*, which are arranged at the further end **36***a* of the control element **16***a* that faces toward the transmission housing **42***a* (FIG. **2** shows only one of the two guide elements **28***a* and one of the two further guide elements **30***a*). The two guide elements **28***a* are similar to each other in shape. Further, the two further guide elements **30***a* are likewise similar to each other in shape. In this case, respectively one of the two guide elements **28***a* and one of the two further guide elements **30***a* are arranged in a common plane, which runs at least substantially perpendicular to the control surface **32***a* of the control element **16***a*. The guide element that is not represented and the further guide element that is not represented are arranged in a further common plane that runs at least substantially parallel to the common plane of the represented guide element **28***a* and of the further represented guide element **30***a* (cf. in this respect also FIG. **7**, which shows an alternative exemplary embodiment of the power tool switching device **10***a*). The common plane of the represented guide element **28***a* and of the further represented guide element **30***a* is represented in FIG. **2** by the plane of the figure, the further common plane being arranged along a direction that runs at least substantially perpendicular to the plane of the figure, in

particular into the plane of the figure, at a distance from the common plane of the represented guide element **28***a* and of the further represented guide element **30***a*. The guide elements **28***a* and the further guide elements **30***a* are each realized as a groove, which grooves are arranged on an inside of the main handle **46***a*, or of the motor housing **44***a*, that faces toward the control element **16***a*. It is conceivable for the guide elements **28***a*, realized as grooves, and the further guide elements **30***a*, realized as grooves, to be open on one side for the purpose of mounting the control element **16***a*.

The further guide elements **30***a* realized as grooves each have a guide track course that is at least partially angled relative to the direction of main extent **22***a* of the control element **16***a*, at least when the control element **16***a* is in the initial position. In this case, the further guide elements **30***a* realized as grooves enclose with the direction of main extent **22***a* of the control element **16***a* an angle other than 90° and 180° when the control element **16***a* is in the initial position. Further, the guide track course of the further guide elements **30***a* realized as grooves are aligned obliquely relative to the drive axis **60***a* of the drive unit **50***a*. The guide elements **28***a* arranged at the end **34***a* of the control element **16***a* that faces away from the transmission housing **42***a* each have a guide track course that extends at least substantially parallel to the direction of main extent **22***a* of the control element **16***a* when the control element **16***a* is in the initial position. The guide elements **28***a* realized as grooves thus run at least substantially parallel to the drive axis **60***a* of the drive unit **50***a*.

For the purpose of movably mounting and guiding the control element **16***a* by means of the guide unit **20***a*, the guide unit **20***a* comprises engagement elements **64***a*, **66***a*, which are fixed to the control element **16***a*. The guide unit **20***a* has a total of four engagement elements **64***a*, **66***a*, which are fixed to the control element **16***a* (FIG. **2** shows only two of the four engagement elements **64***a*, **66***a*, the engagement elements that are not shown being arranged in a mirror-image manner on a plane on the control element **16***a* that runs at least substantially perpendicular to the control surface **32***a*). The engagement elements **64***a*, **66***a* are realized so as to be integral with the control element **16***a*. It is also conceivable, however, for the engagement elements **64***a*, **66***a* to be fixed to the control element **16***a* by means of a positive and/or non-positive connection. When the control element **16***a* is in a mounted state, the engagement elements **64***a*, **66***a* each engage in one of the guide elements **28***a* or in one of the further guide elements **30***a*. The engagement elements **64***a*, **66***a* in this case are realized as guide bolts, which have a cylindrical cross section. It is also conceivable, however, for the engagement elements **64***a*, **66***a* to be of a different shape, considered appropriate by persons skilled in the art. The guide unit **20***a* is thus realized as a slideway guide unit.

Furthermore, the switching unit **14***a* has at least one blocking element **24***a*, which is provided to block a movement of the control element **16***a* in at least one direction, in at least one operating state. The blocking element **24***a* is mounted in a swiveling manner on the control element **16***a*. The blocking element **24***a* in this case is arranged with spring bias in a recess **68***a* of the control element **16***a*. The blocking element **24***a* acts in combination with a stop element **70***a* of the switching unit **14***a* for the purpose of blocking a movement of the control element **16***a* along the direction of main extent **22***a* of the control element **16***a*. The stop element **70***a* is integrally formed on to the inside of the motor housing **44***a*, or of the main handle **46***a*, that faces toward the control element **16***a*. When the blocking element **24***a* is in a blocking position, the blocking element **24***a* thus, via the stop element **70***a*, supports an actuating force, which acts upon the control element **16***a*, on the motor housing **44***a*, or on the main handle **46***a*. For the purpose of releasing the blocking position, the blocking element **24***a* is swiveled about a swivel axis, contrary to a spring force, by an operator. The blocking element **24***a* has two limbs that extend in directions facing away from the swivel axis. One limb of the blocking element **24***a* in this case is realized as an actuating limb **76***a*, which can be actuated by an operator, and one limb is realized as a blocking limb **78***a*, which bears against the stop element **70***a* when in the blocking position. The actuating limb **76***a* and the blocking limb **78***a* are each directly connected to the swivel axis. The blocking limb **78***a* is formed on to the actuating limb **76***a*, on a side of the actuating limb **76***a* that faces toward the swivel axis. Further, the actuating limb **76***a* and the blocking limb **78***a* each extend obliquely in relation to the direction of main extent **22***a* of the control element **16***a* when the blocking element **24***a* is in the blocking position and in a release position.

In addition, the switching unit **14***a* comprises at least one spring element **26***a*, which is provided to apply a spring force to the control element **16***a* in at least one operating position. The spring element **26***a* is realized as a compression spring. It is also conceivable, however, for the spring element **26***a* to be of a different design, considered appropriate by persons skilled in the art, such as, for example, designed as a tension spring, torsion spring, etc. The spring element **26***a* is provided to apply a spring force to the control element **16***a* in the direction of the initial position of the control element **16***a*. The spring element **26***a* in this case is a component of the switching element **18***a*, which component is provided to apply a spring force to an actuating striker **72***a* of the switching element **18***a* in the direction of a position of the switching element **18***a* that corresponds to a non-actuated state of the switching element **18***a*. It is also conceivable, however, for the spring element **26***a* to be realized separately from the switching element **18***a* and, for the purpose of applying a spring force to the control element **16***a*, to be supported by one end on the inside of the motor housing **44***a*, or of the main handle **46***a*, that faces toward the control element **16***a* and to be supported on the control element **16***a* by a further end.

Upon an actuation of the control element **16***a*, starting from the initial position of the control element **16***a*, by means of application of force by an operator in the direction of the direction of main extent **22***a* of the control element **16***a*, the control element **16***a*, after release of the blocking position of the blocking element **24***a* as a result of the guidance by the guide unit **20***a*, executes a movement parallel to the direction of main extent **22***a* of the control element **16***a*, which movement is superimposed by a swivel movement about a swivel axis of the control element **16***a* that runs at least substantially perpendicular to the direction of main extent **22***a* of the control element **16***a*. The control element **16***a* is swiveled about the swivel axis, in a direction facing toward the motor housing **44***a*, or the main handle **46***a*. As a result of an actuation, therefore, the control element **16***a* goes at least partially into the motor housing **44***a*, or into the handle **46***a*. The control element **16***a* is thus moved from the initial position into a switch-on position (FIG. **3**). In this case, the engagement elements **64***a*, **66***a* slide on peripheral regions of the guide elements **28***a*, realized as grooves, and on peripheral regions of the further guide elements **30***a*, realized as grooves.

The guide elements **28***a* arranged at the end **34***a* of the control element **16***a* that faces away from the transmission housing **42***a*, together with the engagement elements **64***a* that engage in the guide elements **28***a*, are provided to mount the control element **16***a* in a swiveling manner. The guide unit **20***a* therefore comprises at least the guide elements **28***a* pro-

vided for mounting the control element **16***a* in a swiveling manner. When the control element **16***a* is in the switch-on position, the actuating striker **72***a* of the switching element **18***a* is actuated by means of an actuating extension **74***a* of the control element **16***a* (FIG. **3**). The actuating extension **74***a* is arranged on a side of the control element **16***a* that faces away from the control surface **32***a*. The actuating extension **74***a* in this case extends, at least substantially perpendicular to the direction of main extent **22***a* of the control element **16***a*, in a direction that faces away from the control element **16***a*. When the control element **16***a* is in the switch-on position, the electric circuit for supplying electrical power to the drive unit **50***a* is closed as a result of the actuation of the switching element **18***a*. As soon as a force applied to the control element **16***a* by an operator is interrupted, or falls below a minimum value, the control element **16***a* is moved into the initial position by means of a spring force of the spring element **26***a*. The blocking element **24***a*, as a result of being mounted with spring bias in the control element **16***a*, is moved into the blocking position when the initial position of the control element **16***a* is attained. A movement of the control element **16***a* in the direction of the switch-on position is thus blocked by means of a combined action of the blocking element **24***a* and the stop element **70***a*.

Alternative exemplary embodiments are represented in FIGS. **4** to **12**. Components, features and functions that remain substantially the same are denoted essentially by the same references. In order to differentiate the exemplary embodiments, the letters a to f are added as a suffix to the references of the exemplary embodiments. The description that follows is restricted substantially to the differences in comparison with the first exemplary embodiment in FIGS. **1** to **3**, and reference may be made to the description of the first exemplary embodiment in FIGS. **1** to **3** in respect of components, features and functions that remain the same.

FIG. **4** shows a detail view of an alternative power tool switching device **10***b* when a control element **16***b* of a switching unit **14***b* of the power tool switching device **10***b* is in an initial position. The power tool switching device **10***b* in this case is arranged in an angle grinder **38***b*, which comprises the power tool switching device **10***b*. The angle grinder **38***b* is of a structure similar to that of the angle grinder **38***a* from FIG. **1**. The power tool switching device **10***b* comprises at least the switching unit **14***b*, which comprises at least the movably mounted control element **16***b* for the purpose of actuating a mechanical, electrical and/or electronic switching element **18***b* of the switching unit **14***b*. In addition, the power tool switching device **10***b* has a guide unit **20***b*, which is provided, upon an actuation of the control element **16***b* along a direction of main extent **22***b* of the control element **16***b*, to convert a movement of the control element **16***b* along the direction of main extent **22***b* at least into a movement of the control element **16***b* running transversely in relation to the direction of main extent **22***b*. In respect of a design of the guide unit, reference may be made to the guide unit **20***a* described in FIGS. **1** to **3**, since the guide unit **20***b* is of a design similar to that of the guide unit **20***a* described in FIGS. **1** to **3**.

The switching unit **14***b* has at least one blocking element **24***b*, which is provided to block a movement of the control element **16***b* in at least one direction, in at least one operating state. The blocking element **24***b* is mounted in a swiveling manner on the control element **16***b*. The blocking element **24***b* in this case is arranged with spring bias in a recess **68***b* of the control element **16***b*. The blocking element **24***b* acts in combination with a stop element **70***b* of the switching unit **14***b* for the purpose of blocking a movement of the control element **16***b* along the direction of main extent **22***b* of the control element **16***b*. The stop element **70***b* is integrally formed on to the inside of a motor housing **44***b*, or of a main handle **46***b*, of the angle grinder **38***b* that faces toward the control element **16***b*. The blocking element **24***b* has an actuating limb **76***b*, which can be actuated by an operator, and has a blocking limb **78***b*, which bears against the stop element **70***b* when in a blocking position. The blocking limb **78***b* is realized so as to be integral with the actuating limb **76***b*. The blocking limb **78***b* in this case is of an L-shaped design. The blocking limb **78***b* is formed on to the actuating limb **76***b*, on a side of the blocking element **24***b* that faces away from a swivel axis. In addition, the blocking limb **78***b* is connected to the swivel axis via the actuating limb **76***b*. Further, when the blocking element **24***b* is in the blocking position, the actuating limb **76***b* and a blocking region of the blocking limb **78***b* extend at least substantially parallel to the direction of main extent **22***b* of the control element **16***b*. For the purpose of releasing the blocking position of the blocking element **24***b*, an operator exerts upon the blocking element **24***b* a force acting at least substantially perpendicular to a control surface **32***b* of the control element **16***b*. As a result, the blocking element **24***b* is swiveled in the direction of an interior space enclosed by the motor housing **44***b*, or by the main handle **46***b* (FIG. **5**).

FIG. **6** shows a detail view of a further alternative power tool switching device **10***c*. The power tool switching device **10***c* in this case is arranged in an angle grinder **38***c*, which comprises the power tool switching device **10***c*. The angle grinder **38***c* is of a structure at least substantially similar to that of the angle grinder **38***a* from FIG. **1**. The power tool switching device **10***c* is of a design at least substantially similar to that of the power tool switching device **10***a* described in the description of FIGS. **1** to **3**. Only a guide unit **20***c* of the power tool switching device **10***c* is of a design that differs from that of the power tool switching device **10***a* described in the description of FIGS. **1** to **3**.

The guide unit **20***c* has two guide elements **28***c* that, when the control element **16***c* is an initial position, run at least substantially parallel to a direction of main extent **22***c* of the control element **16***c* (FIG. **7**). The guide elements **28***c* are each realized as a groove, which groove is open for the purpose of mounting the control element **16***c* in the direction of a transmission housing (not represented here in greater detail) of a power tool housing **40***c* of the angle grinder **38***c*. In addition, the guide unit **20***c* has two further guide elements **30***c*, realized as grooves, which each have a guide track course that is at least partially angled relative to the direction of main extent **22***c* of the control element **16***c*, when the control element **16***c* is in an initial position (FIG. **7**). The further guide elements **30***c* in this case each have a partial region **80***c* that runs at least substantially parallel to the direction of main extent **22***c* of the control element **16***c* when the control element **16***c* is in the initial position, and have a further partial region **82***c* that is angled relative to the partial region **80***c* that runs at least substantially parallel to the direction of main extent **22***c* of the control element **16***c*. For the purpose of mounting the control element **16***c*, the partial region **80***c* that runs at least substantially parallel to the direction of main extent **22***c* of the control element **16***c* when the control element **16***c* is in the initial position is open in a direction that faces away from the transmission housing.

The guide elements **28***c* and the further guide elements **30***c* in this case are arranged, in a manner at least substantially similar to that of the guide elements **28***a* and the further guide elements **30***a* described in the description of FIGS. **1** to **3**, on a motor housing **44***c*, or a main handle **46***c*, of the power tool housing **40***c*. The motor housing **44***c* is realized in two parts.

The motor housing **44***c* in this case comprises a housing part **84***c* in the form of a hollow cylinder, and comprises a further, pot-type housing part **86***c*, which can be positively connected to the housing part **84***c* that is in the form of a hollow cylinder (FIG. **7**). The guide elements **28***c* that run at least substantially parallel to the direction of main extent **22***c* of the control element **16***c* when the control element **16***c* is in the initial position are formed on to the pot-type housing part **86***c*. The further guide elements **30***c*, which have a guide track course that is at least partially angled relative to the direction of main extent **22***c* of the control element **16***c* when the control element **16***c* is in the initial position, are formed on to the housing part **84***c* that is in the form of a hollow cylinder.

Furthermore, a switching unit **14***c* comprises at least one blocking element **24***c*, which is provided, upon an actuation of the control element **16***c*, to block a movement of the control element **16***c* along a direction running at least substantially perpendicular to the direction of main extent **22***c* of the control element **16***c*. The blocking element **24***c* in this case is constituted by peripheral regions of the partial regions **80***c* of the guide elements **30***c* that run at least substantially parallel to the direction of main extent **22***c* of the control element **16***c* when the control element **16***c* is in the initial position.

FIG. **8** shows a detail view of a further alternative power tool switching device **10***d* when a control element **16***d* of a switching unit **14***d* of the power tool switching device **10***d* is in an initial position. The power tool switching device **10***d* in this case is arranged in an angle grinder **38***d*, which comprises the power tool switching device **10***d*. The angle grinder **38***d*, not represented in greater detail, is of a structure at least substantially similar to that of the angle grinder **38***a* from FIG. **1**. The power tool switching device **10***d* comprises at least the switching unit **14***d*, which comprises at least the movably mounted control element **16***d* for the purpose of actuating a mechanical, electrical and/or electronic switching element **18***d* of the switching unit **14***d*. In addition, the power tool switching device **10***d* has a guide unit **20***d*, which is provided, upon an actuation of the control element **16***d* along a direction of main extent **22***d* of the control element **16***d*, to convert a movement of the control element **16***d* along the direction of main extent **22***d* at least into a movement of the control element **16***d* running transversely in relation to the direction of main extent **22***d*.

The guide unit **20***d* has two guide elements **28***d*, realized as grooves, and has two further guide elements **30***d*, realized as grooves, which each have a guide track course that is at least partially angled relative to the direction of main extent **22***d* of the control element **16***d*, when the control element **16***d* is in the initial position. The guide elements **28***d* and the further guide elements **30***d* in this case each have a partial region **80***d*, **88***d* that runs at least substantially parallel to the direction of main extent **22***d* of the control element **16***d* when the control element **16***d* is in the initial position, and have a further partial region **82***d*, **90***d* that is angled relative to the partial region **80***d*, **88***d* that runs at least substantially parallel to the direction of main extent **22***d* of the control element **16***d*. Peripheral regions of the partial regions **80***d*, **88***d* that run at least substantially parallel to the direction of main extent **22***d* of the control element **16***d* when the control element **16***d* is in the initial position together constitute a blocking element **24***d* of the switching unit **14***d*. It is conceivable for the guide elements **28***d*, realized as grooves, and the further guide elements **30***d*, realized as grooves, to be open on one side for the purpose of mounting the control element **16***d*. The guide elements **28***d* and the further guide elements **30***d* in this case are arranged on a motor housing **44***d*, or on a main handle **46***d* of a power tool housing **40***d*, in a manner that is at least substantially similar to an arrangement of the guide elements **28***c* and the further guide elements **30***c*, described in the description of FIGS. **6** and **7**, on the motor housing **44***c*, or on the main handle **46***c* of the power tool housing **40***c*.

FIG. **9** shows a detail view of a further alternative power tool switching device **10***e* when a control element **16***e* of a switching unit **14***e* of the power tool switching device **10***e* is in an initial position. The power tool switching device **10***e* in this case is arranged in an angle grinder **38***e*, which comprises the power tool switching device **10***e*. The angle grinder **38***e*, not represented in greater detail, is of a structure at least substantially similar to that of the angle grinder **38***a* from FIG. **1**. The power tool switching device **10***e* comprises at least the switching unit **14***e*, which comprises at least the movably mounted control element **16***e* for the purpose of actuating a mechanical, electrical and/or electronic switching element **18***e* of the switching unit **14***e*. The switching unit **14***e* comprises at least one blocking element (not represented here), which is provided to block a movement of the control element **16***e* in at least one direction, in at least one operating state. The blocking element in this case can be realized in a manner similar to that of the blocking element **24***a* described in the description of FIGS. **1** to **3**. In addition, the power tool switching device **10***e* has a guide unit **20***e*, which is provided, upon an actuation of the control element **16***e* along a direction of main extent **22***e* of the control element **16***e*, to convert a movement of the control element **16***e* along the direction of main extent **22***e* at least into a movement of the control element **16***e* running transversely in relation to the direction of main extent **22***e*.

The guide unit **20***e* has two guide elements **28***e* that, when the control element **16***e* is in the initial position, run at least substantially parallel to the direction of main extent **22***e* of the control element **16***e* (FIG. **9** shows only one of the two guide elements **28***e*). The guide elements **28***e* are realized as grooves. It is conceivable for the guide elements **28***e*, realized as grooves, to be open on one side for the purpose of mounting the control element **16***d*. When the control element **16***e* is in a mounted state, the guide elements **28***e* are arranged at an end **34***e* of the control element **16***e* that faces away from a transmission housing (not represented in greater detail here) of a power tool housing **40***e* of the angle grinder **38***e*. For the purpose of guiding a movement of the control element **16***e*, the guide unit **20***e* comprises engagement elements **64***e*, arranged on the control element **16***e*, which engage in the guide elements **28***e*. In addition, the guide unit **20***e* comprises two further guide elements **30***e* that, when the control element **16***e* is in a mounted state, are arranged at an end **36***e* of the control element **16***e* that faces toward the transmission housing (FIG. **9** shows only one of the two further guide elements **30***e*). The further guide elements **30***e* are realized as pendulum rods. The further guide elements **30***e*, realized as pendulum rods, are movably mounted on the control element **16***e*. The control element **16***e* in this case comprises trunnions **92***e*, on each of which one of the further guide elements **30***e* is movably mounted. In addition, the further guide elements **30***e*, realized as pendulum rods, are arranged in a movable manner on an inside of a motor housing **44***e*, or of a main handle **46***e* of the power tool housing **40***e*, that faces toward the control element **16***e*. The motor housing **44***e*, or the main handle **46***e*, in this case comprises trunnions **94***e*, on each of which one of the further guide elements **30***e* is movably mounted. The guide elements **28***e* and the further guide elements **30***e* are arranged relative to each other in a manner at least substantially similar to that of the guide elements **28***a* and the further guide elements **30***a* described in the description of FIGS. **1** to **3**.

Upon an actuation of the control element **16***e*, starting from the initial position of the control element **16***e*, along the direction of main extent **22***e* of the control element **16***e*, the further guide elements **30***e*, realized as pendulum rods, are moved relative to the control element **16***e* and relative to the power tool housing **40***e*. By means of a combined action of the guide elements **28***e* that, when the control element **16***e* is in the initial position, run at least substantially parallel to the direction of main extent **22***e* of the control element **16***e*, and that are realized as grooves, and the further guide elements **30***e*, realized as pendulum rods, a movement resulting from an actuation of the control element **16***e* along the direction of main extent **22***e* of the control element **16***e* a movement of the control element **16***e* along the direction of main extent **22***e* is converted at least into a movement of the control element **16***a* running transversely in relation to the direction of main extent **22***e*. As a result, the control element **16***e* is moved from the initial position into a switch-on position (FIG. **10**) by means of a translational movement, which is superimposed by a swivel movement about a swivel axis running at least substantially perpendicular to the direction of main extent **22***e*. The guide unit **20***e* is thus realized as a combination of a slideway guide unit and a pendulum rod guide unit.

FIG. **11** shows a detail view of a further alternative power tool switching device **10***f* when a control element **16***f* of a switching unit **14***f* of the power tool switching device **10***f* is in an initial position. The power tool switching device **10***f* in this case is arranged in an angle grinder **38***f*, which comprises the power tool switching device **10***f*. The angle grinder **38***f*, not represented in greater detail, is of a structure at least substantially similar to that of the angle grinder **38***a* from FIG. **1**. The power tool switching device **10***f* comprises at least the switching unit **14***f*, which comprises at least the movably mounted control element **16***f* for the purpose of actuating a mechanical, electrical and/or electronic switching element **18***f* of the switching unit **14***f*. In addition, the power tool switching device **10***f* comprises a guide unit **20***f*, which is provided, upon an actuation of the control element **16***f* along a direction of main extent **22***f* of the control element **16***f*, to convert a movement of the control element **16***f* along the direction of main extent **22***f* at least into a movement of the control element **16***f* running transversely in relation to the direction of main extent **22***f*.

The guide unit **20***f* has two guide elements **28***f* realized as pendulum rods (FIG. **11** shows only one of the two guide elements **28***f*). When the control element **16***f* is in a mounted state, the guide elements **28***f* are arranged at an end **34***f* of the control element **16***f* that faces away from a transmission housing (not represented in greater detail here) of a power tool housing **40***f* of the angle grinder **38***f*. In addition, the guide unit **20***f* comprises two further guide elements **30***f* that, when the control element **16***f* is in a mounted state, are arranged at an end **36***f* of the control element **16***f* that faces toward the transmission housing (FIG. **11** shows only one of the two further guide elements **300**. The further guide elements **30***f* are likewise realized as pendulum rods. The guide elements **28***f*, realized as pendulum rods, and the further guide elements **30***f*, realized a pendulum rods, are movably mounted on the control element **16***f*. The control element **16***f* in this case comprises trunnions **92***f*, on each of which one of the guide elements **28***f* or the further guide elements **30***f* is movably mounted. In addition, the guide elements **28***f*, realized as pendulum rods, and the further guide elements **30***f*, realized as pendulum rods, are arranged in a movable manner on an inside of a motor housing **44***f*, or of a main handle **46***f* of the power tool housing **40***f*, that faces toward the control element **16***f*. The motor housing **44***f*, or the main handle **46***f*, in this case comprises trunnions **94***f*, on each of which one of the guide elements **28***f* or the further guide elements **30***f* is movably mounted. The guide unit **20***f* is thus realized as a pendulum rod guide unit. The guide elements **28***f* and the further guide elements **30***f* are arranged relative to each other in a manner at least substantially similar to that of the guide elements **28***a* and the further guide elements **30***a* described in the description of FIGS. **1** to **3**.

In addition, for the purpose of actuating an actuating striker **72***f* of the switching element **18***f*, the control element **16***f* comprises an actuating extension **74***f*, which is arranged relatively obliquely in relation to the direction of main extent **22***f* of the control element **16***f*, on a side of the control element **16***f* that faces away from a control surface **32***f* of the control element **16***f*. The actuating extension **74***f* is provided to exert an actuating force upon the actuating striker **72***f* when the control element **16***f* is in a switch-on position (FIG. **12**). In addition, the switching unit **14***f* comprises a blocking element **24***f*, which is movably arranged on the control element **16***f*. The blocking element **24***f* in this case is of a design similar to the design of the blocking element **24***a* described in the description of FIGS. **1** to **3**.

What is claimed is:

1. A power tool switching device, comprising:

at least one switching unit having at least one movably mounted control element configured to actuate a mechanical, electrical and/or electronic switching element, the switching element configured to supply electrical power to a power tool; and

at least one guide unit, which, upon an actuation of the control element along a direction of main extent of the control element, is configured to convert a movement of the control element along the direction of main extent at least into a movement of the control element running transversely in relation to the direction of main extent,

wherein the control element has at least two ends that face away from each other as viewed along the direction of main extent, wherein at least one guide element of the guide unit is arranged at one end, and wherein at least one further guide element of the guide unit is arranged at a further end that faces away from the end when the control element is in the mounted state.

2. The power tool switching device according to claim **1**, wherein the switching unit has at least one blocking element configured to block a movement of the control element in at least one direction in at least one operating state.

3. The power tool switching device according to claim **1**, wherein the switching unit has at least one spring element configured to apply a spring force to the control element in at least one operating position.

4. The power tool switching device according to claim **1**, wherein the guide unit is embodied as one or more of a slideway guide unit and a pendulum rod guide unit.

5. The power tool switching device according to claim **1**, wherein the guide unit has at least one guide element configured to mount the control element in a swiveling manner.

6. The power tool switching device according to claim **5**, wherein the guide unit has at least one further guide element embodied as a groove, which has a guide track course that is at least partially angled relative to the direction of main extent of the control element at least when the control element is in an initial position.

7. The power tool switching device according to claim **4**, wherein the guide unit has at least one guide element embodied as a pendulum rod.

8. The power tool switching device according to claim 7, wherein the guide element embodied as a pendulum rod is movably mounted on the control element.

9. A portable power tool, comprising:

a power tool switching device including:

at least one switching unit having at least one movably mounted control element configured to actuate a mechanical, electrical and/or electronic switching element, the switching element configured to supply electrical power to the portable power tool; and

at least one guide unit, which, upon an actuation of the control element along a direction of main extent of the control element, is configured to convert a movement of the control element along the direction of main extent at least into a movement of the control element running transversely in relation to the direction of main extent,

wherein the control element has at least two ends that face away from each other as viewed along the direction of main extent, wherein at least one guide element of the guide unit is arranged at one end, and wherein at least one further guide element of the guide unit is arranged at a further end that faces away from the end when the control element is in the mounted state.

10. The power tool switching device according to claim 1, wherein the power tool switching device is configured for portable power tools.

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